

# NATURAL RESOURCES CONSERVATION SERVICE

## CONSERVATION PRACTICE STANDARD

### FIREBREAK

(FEET)

CODE 394

#### DEFINITION

A strip of bare land or vegetation that retards fire.

#### PURPOSES

- To prevent the spread of wildfire.
- To control prescribed burns.

#### CONDITIONS WHERE PRACTICE APPLIES

All land uses where protection from wildfire is needed or prescribed burning is applied.

#### CRITERIA

Firebreaks may be temporary or permanent and shall consist of fire-resistant vegetation, non-flammable materials, bare ground, or a combination of these.

Firebreaks will be of sufficient width and length to contain the fire.

Firebreaks shall be located to minimize risk to the resources being protected, including locating on the contour where practicable to minimize risk of soil erosion.

Plant species selected for vegetated firebreaks will be noninvasive, fire-retarding, and easy to maintain.

Erosion control measures shall prevent sediment from leaving the site.

Comply with applicable federal, state, and local laws and regulations during the installation, operation and maintenance of this practice, including the state's Forest Practices Guidelines.

Constructed firebreaks should tie into existing physical barriers (without direct drainage into receiving waters to prevent sedimentation).

#### Types of Firebreaks

Four types of firebreaks are adaptable to the various needs and conditions existing in North Carolina. They are:

- (a) forest roads,
- (b) plowed, disked, or bladed firebreaks,
- (c) burned firebreaks, and
- (d) vegetated firebreaks.

Forest roads and plowed or disked breaks may be used in any forest type and on nearly all terrain conditions, provided location specifications are followed. Use of burned and vegetated breaks is generally restricted to pine woodlands in the Coastal Plain and on gentle slopes in the Piedmont.

#### Forest Roads

1. Location: Existing woods roads or trails can be effective firebreaks if properly maintained. Abandoned roads or trails should be renovated and erosion controlled. Fallen trees, leaves or other flammable materials should be removed and if roads are overgrown with shrubs, grasses or other vegetation, they should be mowed. Expose mineral soil where needed in early spring or fall just prior to the critical fire season.
2. Construction:
  - a. The wheeling surface of roads should be at least 10 feet wide, sufficient to accommodate one way truck traffic with turnouts for passing.
  - b. The maximum permissible sustained grade should be 10 percent. Short, steep slopes should be avoided. The road grade should be broken every 300 to 500 feet on long, climbing grades.
  - c. Proper drainage is essential to the stability on the road. Culverts or surface drains may be used. Surface drains are the most economical. They should be at about a 30 degree angle or less down-slope. Surface gutters or earthen water bars can be used to supplement breaks in grade. On flat terrain, drainage must

be to both sides and diverted from the roadbed at every opportunity. Spoil from drainage ditches may be used to elevate roadbeds.

Road Grade %	Approx. distance needed between water breaks (feet)
1	400
2	245
5	125
10	78

- d. Seed constructed roadway with a cool-season grass or legume following specifications.

### **Plowed, Disked or Bladed Firebreaks**

1. Location: These should be located:
  - a. Parallel to public roads and railroads (high risk areas) adjacent to forest land property boundaries.
  - b. Parallel to forest land property boundaries.
  - c. Within forest land where necessary.
  - d. In the Piedmont and Mountains, they should be located on adapted main ridges and side ridges. They should follow the approximate contour of the land wherever feasible to minimize erosion.
2. Construction:
  - a. Plowed, disked, or bladed firebreaks should be constructed to expose mineral soil with fireline plows, heavy bush and bog disks, or farm plows and disks or blades depending upon the terrain and character of vegetation to be removed.
  - b. Firebreak width is a site-specific determination. The breaks should be the width of the disk, Mathis plow ( 3 to 5 feet), or blade (6 to 8 feet). These widths are usually sufficient to contain most creeping or slowly moving ground fires, but will not stop crown fires.
  - c. Temporary firebreaks shall be plowed immediately before burning.

### **Burned Firebreaks**

1. Location: Burned firebreaks may be located in pine forest land in the Coastal Plain and Piedmont:
  - a. Parallel to public roads and railroads adjacent to forest land boundaries.
  - b. Parallel to forest land property boundaries.
  - c. Within forests, where necessary.
2. Construction:
  - a. Two parallel strips, each 5 feet wide, and a minimum of 20 feet apart, should be plowed or disked.
  - b. Sound, thrifty trees on the area between the strips should not be cut except in planned harvesting operations.
  - c. Logs, limbs, and other flammable materials which are likely to burn for several hours should be removed from the area between the strips.
  - d. A burning permit must be obtained from the local Forest Ranger or Fire Warden, representing the North Carolina Division of Forest Resources.
  - e. The area between the strips should be burned on a calm day.

### **Vegetated Firebreaks**

1. Location: Vegetated firebreaks should be planned as a part of the total farm plan. Locations must protect the forest as well as provide convenient access to the enterprise. They may be located in pine woodlands in the Coastal Plain and Piedmont.  
Areas beneath power lines and telephone lines are excellent locations.
2. Construction and Seeding
  - a. Strips at least 30 feet wide adjoining forest land and 50 feet wide within forests should be cleared by removing trees and scrubby growth.
  - b. Breaks must be 50 feet wide within woodlands to allow sufficient sunlight for grass and legume plants to grow successfully and form a sod.
  - c. The land should be prepared and seeded with an adapted grass or small grain and an adapted legume. Use cool-season forages only.

- d. Apply fertilizer and lime as recommended for the soil conditions, or according to soil tests. Generally, fertilization should be somewhat heavier than for normal pasture areas. See Critical Area Planting (Code 342).

## CONSIDERATIONS

Use barriers such as streams, lakes, ponds, rock cliffs, roads, field borders, skid trails, landings, drainage canals, railroads, utility rights-of-way, cultivated land or other areas as existing firebreaks.

Attempt to locate firebreaks near ridge crests and valley bottoms. If winds are predictable, firebreaks should be located perpendicular to the wind and on the windward side of the area to be protected.

Consider the selection of plant species that will enhance the needs of wildlife in the area.

Planning and layout should include multiple uses.

Consider cultural resources and environmental concerns such as threatened and endangered species of plants and animals, natural areas, and wetlands.

Costs can be reduced substantially if roads are constructed or renovated in conjunction with timber harvesting operations.

## PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes and narrative statements in the conservation plan, burn plan and other acceptable documentation.

Minimum documentation for this practice includes (as applicable):

- Species to be planted
- Site preparation and planting methods
- Equipment to be used
- Season of the year to be performed
- Soil amendments
- Location
- Statement requiring compliance with all federal, state, and local laws
- Operation and maintenance requirements

## OPERATION AND MAINTENANCE

### General

- Inspect annually and rework erosion control measures as necessary to ensure proper function.
- Access by vehicles or people will be controlled to prevent damage to the firebreak.
- Bare ground firebreaks which are no longer needed will be stabilized.
- Inspect all firebreaks for woody materials such as dead limbs or blown down trees and remove them from the firebreak.

### Forest Roads

- Remove fallen trees from the roadway and mow roadway prior to the fall or spring fire-danger season. Burn or disk dead grass if needed.
- Clean out and repair all surface drains.

### Plowed, Disked, or Bladed Firebreaks

- Construct just before fire season or burning.
- Inspect annually and rework bare ground firebreaks as necessary to keep them clear of flammable vegetation.

### Burned Firebreaks

- Burning should be repeated as necessary to eliminate flammable material on the break.
- Whenever burning is repeated, it is best to do it just prior to either the critical spring or fall fire season.

### Vegetative Firebreaks

- Vegetated firebreaks should be fertilized and managed as needed to maintain ground cover and a proper balance of grasses and legumes.
- Mow or graze to avoid a build-up of excess litter and to control weeds. Green cover during early spring and late fall is most essential.
- The breaks should be periodically reinforced with seed and fertilizer.